represent a fair and adequate one, then this criticism is sound. Again, if the fees charged by the radiologist are such that he is obviously capitalizing on his appointment, it is evident that his income can be too large. (In both these instances, the errors can be speedily corrected as outlined below.) If, however, by reason of his skill and professional competence the radiologist earns a large income, then the hospital can have no criticism to make; indeed, it is in a fortunate position, since by the very nature of the volume of x-ray work involved, the hospital will be the gainer both in room occupancy and otherwise. The conscientious radiologist of necessity employs a considerable number of well-trained and well-paid assistants, spends a considerable portion of his income on new diagnostic and therapeutic adjuncts, and is usually under a strong incentive to do much deserving clinic work. If, on the other hand, he is not conscientious, the executive staff of the hospital has the power to recommend the termination of his appointment.

I sincerely believe that some form of solution such as the above is a satisfactory one for the problem presented. The hospital does not relinquish control of the department, inasmuch as the rental contract can be annulled at any time (by either party) upon reasonable notice, and the personnel of the department and its general policies are subject to approval by the hospital. The rental plan would aid in establishing the status of the hospital fairly in medical practice, and quite as fairly in establishing the status of the radiologist in the hospital.

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CHARLES M. RICHARDS, M. D. (303 Medico-Dental Building, San Jose).—This survey which Doctor Goin has made for us is one of real value—which cannot always be said of reports on questionnaires. The chief basis of its value lies in the fact of the unprecedented response which it received and the widespread geographical distribution of that response. With an 85 per cent response from such widely separated parts of the country, no one can doubt the validity of the deductions drawn from this investigation.

It appears that only a small proportion of the leading radiologists of this country consider their own hospital relations ideal, and that a great deal of educating needs to be done if hospital executives and trustees are to realize the justice of the radiologist's claims. The abuses of the radiological department of hospitals have been going on for so many years that they have come to be taken as a matter of course. Hospital budgets have been set up, allowing for a profit from the x-ray and pathological departments to make up for some of the losses in the surgery, rooms, and wards. It has been considered quite a legitimate thing, and no one, until recently, has risen to expound the injustices of the practice. I am sure that we all believe that practically all the public-spirited laymen who give so much of their time freely, acting as directors and trustees of the hospitals of our country, would not knowingly work an injustice to any member of their professional staffs, though, in their enthusiasm to see their hospital get along, they have been parties to the exploitation of their radiologists and pathologists. I feel convinced that a great deal can be done by all of us in the education, along these lines in a quiet way, of our lay-trustees, and the majority of them will eventually see our point of view and agree with us. Also the hospital executives, who are laden with the burden of running their hospitals with as little loss as possible, will be open to reason, and will eventually unlearn the lesson which has become firmly fixed in their minds, that the professional efforts of the radiologist and pathologist are legitimate sources of profit to the hospital. The American Hospital Association and the hospital section of the American Medical Association are showing a willingness to assist in this reëducating, and I believe that we shall soon be speaking to more receptive ears than we have in the past.

COMPULSORY HEALTH INSURANCE*

By FREDERICK L. HOFFMAN, LL. D.
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IV

IN the background of all social insurance propaganda looms the spectacle of the economic distress of the medical profession. From practically every country come alarming reports of an oversupply of doctors, the growth in number being disproportionate to the growth in population. In the words of Dr. Alfred Cox of the British Medical Association, in an address on "A General Medical Service for the Nation," delivered last July before the Royal Sanitary Institute Congress at Blackpool, "all the resources of medical science should be available to every citizen of this country." To achieve this purpose, however, would stretch the resources of any country to the breaking point. Once more, in the words of Doctor Cox, "A scheme was wanted which would gather together all the various means, individual and institutional, for the promotion of health, and the cure and alleviation of diseases, and make them available to everybody." Such an idea, it may safely be asserted, is a hopeless dream.

RATIO OF DOCTORS TO POPULATION

The statement is frequently made that in the United States the ratio of doctors to population is much higher than elsewhere. In 1931, it was calculated that the ratio of doctors to population was one in 800, as compared with 884 for the British Isles, 900 for Austria, 1250 for Switzerland, 1560 for Germany, and 2860 for Sweden. Yet the death rate for Sweden in 1932 was only 11.6 per 1000, as compared with 11.2 for the United States, and 12.0 for England and Wales.

The "Social Dangers of an Oversupply of Physicians" are admirably presented by Dr. Walter L. Bierring of Des Moines, Iowa, in a paper read at the annual conference of Secretaries of Constituent State Medical Associations, September, 1933, and reported upon in the American Medical Association *Bulletin* of February, 1934. Doctor Bierring observes that "over a ten-year period the number of medical graduates greatly exceeded the number of deaths in the medical profession." And further: "According to the final report of the Commission on Medical Education, the United States has more physicians per unit of population than any other country in the world, twice as many as the leading countries of Europe. With a total of 156,440 licensed physicians in the United States at the present time, there is one for every 780 persons." He estimated that a reasonably complete medical care could be provided in this country on the basis of one physician to about 1,200 persons, and that an adequate medical service for the United States could probably be pro-

*One of a series of articles on compulsory health insurance, written for CALIFORNIA AND WESTERN MEDICINE by the well-known consulting statistician, Frederick L. Hoffman, LL.D. Articles in this series were printed in previous issues, as follows: I, in April, page 245; II, in May, page 361; III, in June, page 411.

vided by about 120,000 active physicians instead of 156,440. According to these figures, there is at present a surplus of approximately 35,000 physicians.

Bierring, therefore, estimated that if the present rate of supply is continued, the number of physicians in excess of indicated needs will increase, and he arrives at the conclusion that "by 1940 there will be in round numbers 171,700 physicians, and in 1980 about 211,800. The number of persons per physician in 1940 will be 760; in 1960 about 730, and in 1980 about 690. Even at the present time it is reported that in many urban communities there are two doctors for every call, and many can barely earn a decent living."

The English author of "This Panel Business" (already referred to in a previous paper) observes, in this connection, that "in 1931 the question of the alleged plethora of doctors was raised, and it was decided to issue a questionnaire to the various countries, and to put the subject down for discussion at their [the Association's] next annual conference." Dr. Alfred Cox of the British Medical Association reviewed the subject of overcrowding of the profession, stating that "This subject was reported on by Doctor Mattlet of Belgium, who based his report on the questionnaire issued early in 1932. This report disclosed a really terrible state of things in many countries—indeed, this country and Canada are the only two in which there is not at present, or threatened in the early future, a great surplus of supply of practitioners over the demand, particularly of 'specialists,' the number of medical students being positively alarming in many countries. Taking the period, 1900-30, the figures showed a constantly decreasing number of potential patients per doctor in every country, though there were still many rural areas which seem to be undersupplied with doctors. Doctor Mattlet examined the causes at some length, and showed that the consequences were a dangerous lowering of the morale of the profession. He declared that in some countries there was now a 'medical proletariat,' which was a menace to society, and this view was emphasized particularly from Germany, Austria, and Hungary."

INCOMES OF PHYSICIANS

According to a treatise on "The Way of Health Insurance" by Simons and Sinai (published by the University of Chicago Press in 1932), in Würtemburg in 1928, 9.84 per cent of the insurance doctors received incomes of less than $720; 15.15 per cent received incomes of from $720 to $1,440, and 23.72 per cent received from $1,440 to $2,400. In the state of Baden, Germany, in 1929, 16.45 per cent of the insurance doctors received incomes of less than $1,000. When allowance is made for the difference in the cost of living, the situation in this country is not much different from that in Germany. According to the Julius Rosenwald Fund, there were 28,000 specialists in this country in 1929 whose incomes exceeded $10,000 a year; 25,000 partial specialists with incomes of $6,100; 142,000 practicing doctors with incomes of $5,500; 68,000 general practitioners with incomes of $3,900, and 25,000 general practitioners with incomes of less than $2,000. These are net incomes of men who have paid substantial sums for their education, although in 1929 many of these had less than $2,000 to live on. Of the doctor's gross income, 40 per cent is spent for professional expenses. In the aggregate, the Fund estimates that in private practice, in 1928, physicians were paid about $1,100,000,000 in fees from their patients, but that only about $660,000,000 of that sum was left to live on, because they had to spend $440,000,000 for professional expenses, such as office rent, transportation, equipment, and assistants.

LURE OF PANEL INCOME TO YOUNG PHYSICIANS

Under conditions like these the young medical graduate is naturally eager for permanent employment, regardless of the compensation which, in most instances, is adequate to provide him with at least a minimum of subsistence. It is from this element that the panel in national health insurance is recruited to a considerable degree.

EXTENSION OF MEDICAL CARE FROM INDUSTRIAL WORKERS TO THEIR FAMILIES

The Committee on Medical Education (U.S.A.) made an illuminating report on the subject, with particular reference to Europe, published in April, 1930. In discussing sickness insurance, it was stated that "national sickness insurance has a very important influence on medical practice." It was the main object of social insurance, in early days, to provide cash benefits to persons incapable of working, instead of providing treatment. Everywhere the tendency is to bring in dependent members of the family subject to medical care on the part of the panel physician, which of course increases his responsibilities, but does not materially contribute to his increased earnings. In England, at the present time, 35 per cent of the total population is covered by national health insurance, or respectively 78 per cent of the occupied population, 86 per cent of the employed population, and 95 per cent of the employed population of insurable age. Medical benefit consists of a general practitioner service, but does not cover the services of a specialist, and is limited to the insured person only, not to his or her family. Aside from this, of course, children of school age receive a certain amount of general medical care from school physicians. Maternity benefits consist of a payment of forty shillings on the confinement of the wife of an insured man. If both the man and wife are insured, the maternity benefit is doubled. A woman who has received a maternity benefit is not entitled to a sickness or disablement benefit for a period of four weeks following her confinement. Sickness, disablement or maternity benefits are not payable to any person

who is a patient in a hospital supported by charity, by voluntary contributions, or by public funds. Sickness or disablement benefit is not payable for accidents or industrial diseases covered by the Workmen's Compensation Act. Out of these classifications arise no end of complexities which place a heavy burden of time and thought on the attending physician. The rules and regulations governing the system are numerous and burdensome.

SOME DANGERS AND DEFICIENCIES OF PANEL PRACTICE

In actual practice, it is true, the system has worked out better than was anticipated. The prosecutions for failure to conform to state requirements, or rules and regulations, are relatively few. On the other hand, the subserviency of the physician to the system hides many defects and deficiencies. The administration of the system by approved societies, to the extent of paying of benefits, makes the latter an impressive body with authority over physicians' activities. The latter being confronted by the duty of certifying sickness, most naturally adopt a course of easy acquiescence to avoid constant conflicts with the clients on his panel. The approved society is one of several bodies the doctor has to deal with, the national health insurance act having created about two hundred insurance committees in England, Scotland, and Wales to administer medical benefits with regard to certain features of local administration. These committees distribute the money sent by the Ministry of Health to the doctors in their areas in accordance with the number of persons on the list of each panel physician. The insurance collections are pooled for the entire country, and the pool is divided according to districts on the basis of the number of insured persons in each district. The amount assigned to each district, divided by the total number of insured persons in the area, sets the capitation fee, which has varied from time to time. The present capitation fee is nine shillings per insured person per year. But the compensation has been reduced to eight shillings for the time being and hope for restoration of the cut is very doubtful. According to the Supplement to the *British Medical Journal* of January 14, 1933, "The reduction of the capitation fee fifteen months ago, accepted by the Insurance Acts Committee, was met by insurance practitioners with a good deal of criticism in the correspondence columns of the Supplement in the last quarter of 1931. This criticism still continues."

The panel physician is no longer free or independent. He is for all practical purposes an employee of the state, and sooner or later there is a reasonable certainty that a state medical service will be established to replace the present highly involved and costly administration of national health insurance. But once such a system comes into operation, it is practically hopeless to anticipate a return to the earlier status of a free and independent medical service.

(To be continued)

THE LURE OF MEDICAL HISTORY*

PHYSICAL MEDICINE—SOME HISTORICAL FACTS AND FIGURES†

By HAROLD M. F. BEHNEMAN, M. D.
San Francisco

JUST as our own life began in the generations preceding this, so did modern medicine. As one candle is lit from another, each generation, each century of medicine progresses in the conquest of disease and the preservation of health.

If we pause briefly, in retrospect, we realize that physical medicine, which is constantly knocking at the door of modern therapy, is no youngster but a very wise old man. Let us review some old familiar names, and perhaps some that are strange to us; let us see some pictures long forgotten as they have hung in the corridors of time—pioneers, prophets and martyrs in a field of therapy whose origin was with Creation.

Progress in medicine, unlike that in other sciences, has rested upon the shoulders of a few strong men in each generation; the mass of men have been a detriment rather than an aid. We move ahead so furiously fast, we have been so necessarily engrossed in the maze of laboratory sciences since the discovery of bacterial etiology of disease, that we are very apt to underestimate and discard our age-old methods of treatment, and so easily lose our memory of those pillars in the foundation of rational medicine. To the student of medical history this will be but a review; to a busy practitioner, I hope it may bring at least a glimpse of the history back of the oldest form of treatment known to man.

USE OF HEAT AND LIGHT

Ancient inscriptions of all sorts indicate that folkways of early medicine, regardless of their origin, have been the same. The use of heat dates back to remote antiquity. Even animals lie in the sun when ill. Massage was long known and practiced by the Indians, Chinese, Japanese, Hindus, and Malays; the manuscript, "Kong Fao" (3000 B. C.) contains accounts of various methods used. The Indian used the hot spring, the vapor bath, and cold plunge. The Ganges and the Nile are frequently referred to in history as the bathing places of ancient man. The Persians, Egyptians, and Phoenicians knew of massage, which was probably imported into Melanesia by Polynesian castaways, as their massage was truly rational and effective. The Indian's "Turkish" bath was the geyser, the warm spring and the sweat-oven. Let us consider these various forms of physical medicine separately; first, that of heliotherapy.

*A Twenty-Five Years Ago column, made up of excerpts from the official journal of the California Medical Association of twenty-five years ago, is printed in each issue of CALIFORNIA AND WESTERN MEDICINE. The column is one of the regular features of the Miscellany Department of CALIFORNIA AND WESTERN MEDICINE, and its page number will be found on the front cover index.

† From the department of medicine, University of California.

† Presented at the American Congress of Physical Therapy, New York, September 5, 1932.